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OBSERVATIONS ON NEWLY HATCHED CHICKS.

BY HATTIE E. HUNT.

The following record of observations, while it contributes nothing very new, may at least show how easy it is to make a beginning in the first-hand study of comparative psychology, and what interesting facts lie upon the surface. All the observations were made in the intervals of active teaching, away from home, and within the necessary limitations of a boarding house:—

The two chickens, Yellow and Black, were hatched March 29, 1897, and came under my charge the following day.

Second day.—At noon gave them meal mixed with water, which they would not eat. Gave them cracker crumbs. They did not know where to look for the food, but if the crumbs were let fall on the paper they would find them. They peck at each other's bills and eyes. Fed them hard boiled eggs, which they liked. When covered with the hand Y. will press up against the hand quite hard. Y. moved as if trying to fly. Offered them some water in a spoon. B. backs away and peeps with alarm. Y. is not afraid. Chase each other for food. Y. eats more than B., and seems the stronger of the two. Y. gives a contented little peep at every crumb he picks up. During their eating in the afternoon B. stood up and gave a cry of alarm, but stopped as soon as I spoke to him. This was repeated twice. Y. accidentally picked into the saucer of water, and the third time took a sip, raising his head to swallow. B. did not find the water, and would not drink when his bill was dipped into it. As soon as they have eaten enough they drop asleep standing. They are covered with a flannel cloth. B. raised his left foot and closed the toes once. Weak and unsteady on their feet. Will follow my hand wherever I move it.

Third day.—Fed them hard-boiled eggs. During their feeding I coughed, and both chickens crouched down to the floor instantly and remained motionless for several seconds. Do not peck at each other's eyes, but try to get food from each other. They know their food as soon as it is given. They prefer the white part of the egg. The crumbs of food that they shake from their bills seem to attract their attention. They will run a foot to pick them up. In the afternoon, when they were hungry, I fed them some cracker soaked in quinine and dyed red. Y. tasted it three times, but would not eat it. B. tasted it twice, and would not eat it.

Fourth day.—Gave them the red cracker soaked in quinine again. Y. would not touch it. B. tasted it once, and would not try it again. Y. scratches his head with one foot, but cannot balance himself very well while doing so. The chickens that belong to the brood from which these chickens were taken are now "scratching" like the old hen. I do not know when they began to do so. Gave the chickens gravel.

Sixth day.—Y. "scratched" for the first time. The paper on which they are kept was wet, and he scratched the wet spot, which was in the sunshine. B. sat down in the sunshine and made the motion that hens do in throwing dust over their backs. They are very sensitive to noise. The least stir will waken them. They stand in the sun and go to sleep, and then sit, or rather fall down

onto the floor. They sometimes sleep lying on the side. In the afternoon I repeated the experiment with the red cracker and quinine. Both were alarmed, and B. gave notes of warning. Soon they would walk around and over the cracker, but would not taste it. Gave the chickens a small dish of gravel.

Seventh day.—Y. "scratched" when he stepped onto the dish of gravel. B. has not been observed to scratch yet. Later, Y. scratched with each foot successively, and then pecked as though there were food there. When out of the box Y. takes little runs. An unexpected sneeze made both chickens run and hide. Later, B. scratched on the wet paper twice. Y. sometimes runs backward. The tendency to follow my hand is not so strong. When B. scratches a tremor seems to seize the foot, moving it so fast that one can scarcely see it, but not making a very definite impression on the place he scratched. Scratching alternately with both feet developed later, as also scratching and then pecking.

Eighth day.—Y. can nearly jump out of the box. When Y. is out of the box he will raise his wings and run for several feet. Have seen no other indication of playfulness. Both scratch and peck on a paper where there is nothing but printing. The scratching is more definite.

Ninth day.—Had a glorious time scratching in a saucer of water. The saucer had a rough surface. B. jumps up to the top of the box, and holds on with his bill while he tries to put his feet up. Finally succeeds and gets out of the box. Y. jumped out of the box in the afternoon. Gave the chickens a piece of strawberry that was red like the cracker, but they would not touch it, even though there was no quinine on it. Were afraid of it. Similar for cranberry. B. was more afraid than Y.

Tenth day.—Y. jumped out of the box, and kept doing so as fast as I could put him back into the box again. He kept this up until I covered the box, and then would spring for the top as soon as I took the cover off. B. tries to crowd under Y. to make Y. brood him.

Eleventh day.—One made the low note of warning like an old hen when a noise was heard in the hall. On my sneezing Y. ran to a chair leg, and B. ran in the opposite direction, both crouching down motionless for a few seconds. When one is taken away the other is much distressed. I shook a few drops of ink on the paper where they were feeding. Y. ran to the drops, pecked at them, then scratched them and pecked them. Then he went away for a time, but returned again, and scratched and pecked the spots. He returned to the spots and did the same thing four times.

Put a small hand-glass on the floor, standing it against my foot. Both were alarmed at seeing themselves in the glass; Y. much more so than B., who soon came near and looked at himself. Whenever Y. came near enough to see himself he would stretch out his neck and bristle up like a rooster fighting another. After a time he began to peck at the sides of the glass, and finally began to walk past and try to crowd into the glass (or into what might have seemed an opening to them). Both did this several times, but Y. continued his investigations for some time. As he walked past the glass he would look into the glass and try to crowd in, but when he got past the glass he would look all around in a surprised way, then would try it again. Finally, in coming to the end once, he walked around behind the glass, looked all about, then went away. A few minutes later both came up in front of the glass, and were afraid of the chickens in the glass. Later, Y. came back and investigated the glass again in the way already described.

Twelfth day.—Put a live earth-worm in the box. B. picked it up, but dropped it with a cry of alarm. Y. then grabbed it and tried to jump out of the box. I took both out of the box, and B. chased Y. for the worm, but Y. soon swallowed it. Later I gave them three worms. Y. was glad to get them, but B. was afraid, and could only be coaxed to eat a dead one. I put quinine on one worm, but Y. swallowed it immediately.

At this stage the chickens were taken back to the hen, and the following observations made: The chickens were placed under the hen at night. In the morning they were very glad to get away because the hen pecked at them. They ran to a fence ten feet away, where they stayed by themselves, scratching and picking the gravel incessantly. They would make friends with none of the other chickens. When the hen called they were afraid and ran away. On the fifteenth day some red apple peelings were thrown to them, but they looked at them, gave a note of alarm and ran away. When the apple skins were placed with the white side up the chickens would eat the pulp. They were taken to the kitchen for warmth, where they saw a cat. They were much frightened at the cat, and ran and hid. Later, when the fire was out and the room cold, B. accidentally came in contact with the cat as she lay asleep on the floor. This at first alarmed the chicken, but as the cat did not stir B. finally cuddled down for a warm sleep. Y. watched B. for a time, and then joined B. in his cozy quarters.

Sixteenth day.—On account of an accident to B., which made him lame and sick, both the chickens were put into a box behind the stove. Y. would go away from the box, but would return every few minutes and jump into the box, walk all around B., softly peeping all the while. In the afternoon B. was better, so that he could hop about in the box and pick up crumbs. Y. stayed out of the box the greater part of the time, but every time that B. peeped for him he would run to the box, hop in, stay a little while and then go away again. Later the two chickens were put with a brood just hatched, and became quite attached to the hen and chickens.

General remarks.—Y. is larger and stronger than B. Y. was more curious or observing, and less timid. They had quite an extensive vocabulary. Their notes were found to be quite different from those of the brood; being very similar to the sparrows, whose voices they may have heard at the windows. Their various notes expressed hunger, discomfort, curiosity, warning, fear, scolding and comfort. They carried on a steady "conversation" for the greater part of their waking hours.

Subsequently, four other chickens were observed in much the same way that Y. and B. were studied. Two of these chickens were kept on gravel, and the other two had paper in the bottom of the box. During the afternoon of the second day one of the chickens on the gravel was observed to make a spasmodic movement with one leg, almost like scratching, but did not scratch. On the fourth day he did scratch. Both the chickens on the gravel scratched before those on the paper did. The experiment with the quinine had the same result as with the other chickens. One taste of the mixture was enough to associate the bitter taste with the red color, and none of them would touch anything red again. On the sixth day each of the four jumped from the window-sill to the floor, a distance of sixteen inches. Two of them would jump a distance of twenty-nine inches, but the other two would not jump this distance. One would jump from the desk to the floor, a distance of forty-seven inches, but would not jump a distance of fifty-nine inches.